

*TheUNIVERSITYofWESTERN ONTARIO*  
*Physical Plant and Capital Planning Services Division*

<b>POLICY:</b>  <b>LOCK-OUT / TAG-OUT</b>			<b>NUMBER:</b> WP-18
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<b>PREPARED BY:</b>  PP&CPSD	<b>AUTHORIZED BY:</b>  D.V.B. Riddell	<b>CLASSIFICATION:</b>  Work Procedure	<b>EFFECTIVE:</b> December 1, 2004
			<b>SUPERSEDES:</b> May 21, 1997

**PURPOSE:**

To ensure that machines/equipment are isolated from potentially hazardous energy before performing service or maintenance activities where the unexpected start-up or release of stored energy could cause injury or damage.

**ENERGY TYPES:**

Electrical\*, mechanical, hydraulic, pneumatic, chemical (natural gas or propane), thermal (steam), or other energy.

**PROCEDURES:** - NOTE: \*High voltage Power System Operation, WP-17 supersedes this policy in electrical applications above 750 Volts.

1. **Preparation for shut-down:** Identify types and magnitude of all energy sources. Identify types and numbers of lock-out and tag-out devices required. Notify affected persons or groups, if any.
2. **Shut-down operating controls:** Turn off switches, valves, levels, etc. on the machine/equipment. Note that this step does NOT bring the machine/equipment to a "zero energy state".
3. **Isolate energy sources.** Isolate the main source of each type of energy using electrical disconnects, breakers, valves, etc. Use blocks, pins, chain, etc. to prevent movement due to hydraulic, pneumatic or gravitational energy. Following depressurization and disconnection, blank or blind piping or duct work using plates or caps. Use slip gates and slip binds to isolate chemical energy in piping systems.
4. **Lock and Tag each isolating device.** Each person working on the machine/equipment will place a personal lock and tag on each isolating device. The worker's name, date and reason for lock-out must be clearly printed on the tag. A lock box system may be used where several workers are involved.
5. **Dissipate energy and verify isolation.** Opening drains, relieving pressure, test and ground, blocking, bleeding or cycling the system, will reduce it to a "zero energy state". Verify that all energy is locked out or dissipated by deliberately attempting to start the machine/equipment. Return all controls to the "off" or "neutral" positions. Complete final inspection to ensure all motion has stopped.

**Equipment Start-up and Operation:**

1. **Ensure safe to use.** Upon completion of the service, make sure all tools and other items are removed. Replace any guards or safeties that were removed.
2. **Notify workers.** In the case of multiple lock-out, inform all crew members prior to removing the last lock. Locks are to be removed only by the person who placed it on the machine/equipment. Ensure all tags are removed.

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**SPECIAL CASES:**

**Contractors:**

When locking out machine/equipment, a control lock (colour coded keyed-alike) and lock-out tag must be used. The contractor and any PP&CPSD staff working on the machine/equipment are responsible for placing their own lock and tag on each isolation device.

**Lock Box:**

In a situation where a number of workers will be working on the same machine/equipment or system, a lock box system may be utilized.

**Lock Removal:**

When the person who places a lock on an isolation device is not available to remove it, the Two-Person rule will apply. The machine/equipment must be deemed safe prior to removal of the lock-out devices.

Two people must be involved in the decision and removal of a lock-out device:

- a. Supervisor of the worker who placed the lock with verbal permission by the one who placed it, or
- b. Supervisor of the worker who placed the lock and one other O&M employee who has knowledge of the system in question.

**RESPONSIBILITIES:**

**Supervisors:**

- ensure employees under their authority receive adequate training and instruction in the procedures laid out below as they pertain to their area of work

**Workers:**

- remove only lock-out and tag-out devices which they have placed and only when their work is completed.
- notify their supervisor of situations where use of a lock-out device is not possible.
- notify their supervisors of questionable situations such as open locks, removal of your lock without your knowledge, tags laying on the floor, unfamiliar locks or locking devices without tags, etc.

**DEFINITIONS:**

**Operational Lock:**

When systems/equipment are permanently or temporarily taken out of service (seasonal shut-downs, redundancy, etc.) any means of tagging, locking or disabling may be used. This operational activity falls outside the scope of this policy. However, if work must be done on the system/ equipment, this policy then applies and the required lock and tag must be used.

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**DEFINITIONS**- continued:

**Control Lock:**

When a shop is required to de-energize systems/equipment in preparation for work by outside contractors, a departmental lock which is keyed alike may be used. This is called a control lock and is identified by the shop's colour code and the letter "C" (control). The contractor must also place a personal lock and tag on the systems/equipment. When the contracted work is complete and contractor locks are removed, a worker from that shop may remove the control lock. This control lock must not be used as a personal lock-out device.

**APPENDIX 1: EQUIPMENT REQUIREMENTS**

<u>EQUIPMENT</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>	<u>ALTERNATE LOCATION</u>
Personal Lock (Colour-Coded)	Plumber/Fitter - GREEN	SHOP	LOCK SHOP
	Electrician - RED	SHOP	LOCK SHOP
	Motor Shop - ORANGE	SHOP	LOCK SHOP
	AC & MF - YELLOW	SHOP	LOCK SHOP
	Power Plant - BLUE	SHOP	LOCK SHOP
	Other - BLACK	LOCK SHOP	LOCK SHOP
Control Lock (Keyed alike)	Coloured as above with "C" (for control on padlock)	SHOP	LOCK SHOP
Lock Labels	Colour-Coded as above	SHOP	STORES
Padlock Eyes	Surface or inside mount	STORES	STORES
Lock-Out Tags	SEE SAMPLE BELOW	SHOP	STORES
Lock-Out Hasps	Nylon or metal	SHOP	STORES
Isolation Devices	Single pole breaker	SHOP	STORES
	Double pole breaker	SHOP	STORES
	Ball valve	SHOP	STORES
	Valve wheel cover	SHOP	STORES
	Switch plate cover	SHOP	STORES



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**LOCK TYPE**

Personal Lock (Colour-Coded)

Control Lock (Colour-Coded Keyed Alike)

- Extra or duplicate keys for these locks will not be cut by the Lock Shop.
- The second key will be signed out by the Lock Shop only when the Lock Removal provisions outlined on page 2 of this procedure are followed, two-person rule. For this purpose, the PP&CPSD Safety Officer must keep an up-to-date inventory of all locks and assigned users.